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Janet Barr

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Cover

This month's cover photograph by Mark Tapia is a view of the expanded facilities available at the UTCS Information Office. The Information Office is featured in the article *UTCS INFORMATION OFFICE* in this edition of *COMPUTERNEWS*

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UTCS INFORMATION OFFICE

The UTCS Information Office has become a valuable resource centre for computing needs. Visitors to the Engineering Annex Bldg. will have noticed a change since the Information Office is no longer used as office space. It is presently furnished with library tables and chairs for users and with a steadily expanding reference collection.

In addition to an extensive collection of IBM manuals that are regularly updated there is documentation on all software packages in current use on our systems. Included are the IMSL Library, WATLIB and statistical packages such as SPSS, SAS and DATATEXT. Documentation on the DEC-10 system and on PDP-11s is also available. Users will find research reports, computing periodicals and a selection of computing newsletters from other installation sites and universities. For users interested in census statistics, there is a comprehensive set of *1976 CANADIAN CENSUS* information.

The Information Office provides services other than upkeep of a reference library. A selection of IBM manuals are sold such as TSO, FORTRAN, JCL and PL/1 documentation and a number of titles pertaining to the DECsystem and the PDP-11 minicomputers. Similarly, a user can purchase separate sections of the UTCS-produced USERBOOK. These abbreviated documents discuss all aspects of the UTCS systems, e.g., text-editing facilities, JCL parameters for running batch jobs, general information on application software and utilities.

Terminal supplies needs can be satisfied at the Information Office. Print wheels and various cloth and carbon ribbons for terminals are stocked.

User education is also a priority. At least twice a year non-credit short courses are organized on subjects of interest to users. These include WYLBUR, APL, SAS, JCL and DEC-10. Such mini-courses, taught by experienced instructors, acquaint current and potential users with the range of computer applications available. They have proved popular. UTCS users who would like to see additional sessions offered, or have suggestions as to new courses, are welcome to contact the Information Office.

Information Office staff will answer general enquiries about services and refer users to their UTCS Customer Services Representative.

Dawne Smith

COMPUTER COMMUNICATIONS

Communications Links - Part II

Line Drivers and Modems

The communications link between a user's remote site and UTCS computers has two components - the **physical medium** that is used to transport digitally encoded signals between the end points and the **drivers, transducers or modems** that input and extract the digital dialgoue between the user's terminal and the host. The physical media or communication lines were described and compared in the *COMPUTER COMMUNICATIONS* column in last month's *COMPUTERNEWS*. The information contained in that article combined with the line driver and modem descriptions below will complete our discussion of the communication

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COMPUTER COMMUNICATIONS continued

links available to UTCS users and should give the users a good idea of the capabilities and costs of communications lines available at the University of Toronto.

This article will provide general information on data transmission and more detailed information on the model characteristics and prices. The reader who wants more background information should read the March 1980 issue of *Mini-Microsystems* which contains articles discussing the fundamentals of data transmission and a detailed summary of the modem specifications available from a wide variety of vendors.

Line drivers and modems are names given to the devices injecting and extracting digital bit streams to and from the communications line. In general, modems operate in pairs, and the sending and receiving modem must have matching characteristics. Some of the characteristics and specifications of the modems available to UTCS users are summarized in Table 2 below.

The Bell system uses several classes of modems that operate on the Bell network and these have become industry standards. Many vendors manufacture modems to these standards and their modems can be used almost interchangeably. Examples of modems included in Table 2 which adhere to these standards are the 103, 212A, 201A, B, and C. In other cases, modem manufacturers may use unique signal transmission techniques that are not available from other vendors. These modems are usually optimized for some special application and must be purchased in pairs. Examples in Table 2 are the LDS120B, LDS309, and Supermodem. The LDS modems are called limited distance sets and are designed to operate on short leased lines. The Supermodem is a long-haul modem that can operate over long distance Bell lines. The Vadic 3434 and AJ1234 use special frequencies that allow acoustically coupled operation at 1200 bits/sec. The 20 ma loop and EIA RS-232 are baseband drivers, transmitting the input pulses unchanged, except for possible amplification. These are limited to short distances requiring high quality, continuous lines which are provided by the terminals directly.

In Table 2, the Transmission Protocol column indicates how characters are transmitted - asynchronously (A) or synchronously (S). The transmission protocol must conform to that requested by the frontend ports. RJE stations and 3270 terminal clusters use synchronous ports. DEC-10 and IBM/370 interactive services use asynchronous ports. Some vendors provide modems with multifunction capability. For example, the GDC 212A provides 300 and 1200 bits/sec. asynchronous capability, as well as 1200 bps synchronous.

The Speed column indicates the **maximum** speed of the modems. Poor line quality may reduce this.

The Line Requirements column specifies the types of lines that can be used with a modem type. Drivers with a U can be used on UTCS lines, with L, on Bell leased lines and with S, on Bell switched lines. The Wire Pairs column indicates the number of twisted pairs required for full/duplex operation. This can be a cost consideration when selecting a leased line where the second pair doubles the monthly rate.

The Cost column gives an indication of the cost of the remote modem. In some cases, the Bell monthly lease rate is given for comparison. Note that modems which operate over the Bell switched network and are not acoustically coupled, will also require a jack from Bell (if modem is Department of Communications (DOC) approved) or a data connector.

The Host Support Cost, if any, must be covered by the user to provide the matching driver at the host end. In cases where the host modem is shared by many users, (eg. dial-in modems), there is no charge. The Vadic 3434 and AJ 1234 modems are not currently supported. In cases where the user cancels the link, the host modem is returned to the user. For the 20ma loop and LDS 120B, the cost, less a usage charge of 1/5 of cost/year, is refunded. This is indi-

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COMPUTER COMMUNICATIONS continued

cated by asterisks in Table 2.

The Connection column indicates how the modem is connected to the link - AC for acoustic couplers, DC for data connectors, and J for jacks.

The Distance column gives the approximate upper bound online length for maximum speeds. The distance may be stretched somewhat for lower speeds. A '-' indicates unlimited distances through the Bell network.

The Availability column gives an approximate delivery date of the modems after receipt of order.

Combining the information on communications links presented in last month's *COMPUTER COMMUNICATIONS* article with that contained here should provide the user with the information necessary to make an informed selection of the communications link appropriate to his needs. For example, a user on campus, expecting to remain in the same location for at least 6 months should get a leased line, from UTCS if possible. An LDS 120B for asynchronous service or LDS309 for synchronous service should be selected. If the user does not expect to remain that long, his telephone could be used, along with a 103,212A or 201 A, B, or C, depending on his requirement for speed and asynchronous or synchronous service. Users off campus, but within 8-10 km., should also consider the leased line route. The low cost of the limited distance datasets makes this a very attractive choice.

When ordering a leased line, the user should contact his Computing Services Representative who can initiate the proceedings. The CSR will also have information on modem availability at UTCS.

Walter Rosocha

Modem	Transmission Protocol	Speed bps	Line Requirements	Wire Pairs	Cost	Host Support Cost	Connection	Distance	Availability
103	A	⩽300	U,L,S	1	$250	0	A.J	5Km	Stock
212A	A	1200 (300)	S	1	$87/month $1200	0	J	-	4-6 wks 2-4 wks
Vadic 3434 AJ1234	A	1200	S	1	$1195	N.A.	A	-	2-4 wks
20 maloop	A	⩽9600	U	2	$ 100	$ 100*	J	.4Km	-
Gandalf LDS 120B	A	⩽9600	U,L	2	$ 300	$ 250*	J	8Km	4-6 wks
EIA RS-232	A/S	⩽9600	U	2	0	0	J	20 m	-
201 A,B,C	S	2400	S	1	$1150 $95/month	$1150	DC	-	4-6 wks
Gandalf LDS 309	S	9600	U,L	2	$ 720	$ 720	J	12Km	4-6 wks
Supermodem	S	9600	U,L,S	2	$3800	$3800	J	-	2-4 mnths

Table 2 Line Driver Comparisons

UTCS RATE ADJUSTMENTS

Over the years, UTCS has passed on to the user community enhanced cost-effectiveness resulting from new-generation computing technology. However, the cost of trained personnel continues to rise. Hence UTCS must adjust its rates to take such inflationary factors into account.

Therefore, effective May 1, 1980, UTCS will be charging new rates for some non-machine related services including Programming Services, Data Entry and Text Entry Services and Job Handling Services.

The new rates are:

Programming Services (including Data Entry Applications)	$30/hour (+20%)
Hourly Data Entry Services	$15/hour (+50%)
Hourly Text Entry Services	$15/hour (+50%)
Job Handling Services	$15/hour (+50%)
Immediate Turnaround Data Entry Services	$ 2.50/thousand Keystrokes (-9%)

The new rates vary from an increase of 50% for the most dramatically underpriced services to a decrease of 9% in Immediate Turnaround Data Entry Services, where re-organization has decreased UTCS overhead.

These price adjustments, and recent price reductions for online DASD, seem to bear out industry predictions that the ratio of machine/personnel costs is moving from 80/20 in the sixties to 20/80 in the eighties.

Walter Berndl

GAMES CAN BE USEFUL

While most users play computer games for amusement, Professor Hugh Arnold of the Faculty of Management Studies has made one computer game the vehicle for a research experiment. Professor Arnold decided to examine motivation and reward in a controlled setting. After examining the games available on the DEC-1090 in the GAM: area, Professor Arnold chose RTSTAR, a complicated variant of the popular game Startrek for his research tool.

RTSTAR (Real Time Startrek) is designed to appeal to trekkies and game addicts. In this game, moves must be made within a certain time, otherwise they are forfeited. Professor Arnold found that the game was both challenging enough to be interesting and yet simple enough to learn quickly. The game also offered immediate feedback to the subject by providing one kind of reward - a score.

Accordingly, motivation was measured by seeing if the subjects returned for further sessions. The effect of money on performance was measured as well, by paying some subjects. Previous studies had used basically uninteresting tasks which did not lend themselves to additional sessions.

An advertisement was placed in the Unclassified section of the Varsity. The Subjects were divided into three groups: (1) the first received no monetary reward; (2) though not initially told a reward would be offered, the second group was given a re-

continued...

GAMES CAN BE USEFUL continued

ward at the end of the session;. (3) the third group was told in advance that a reward would be paid at the end of the session.

Each group comprised 20 subjects. Each subject was booked for three one-hour sessions and each subject was offered additional sessions with no reward. In this way motivation was measured both by the number of sessions attended and by whether the subject chose to attend additional sessions. At the end, subjects were asked to evaluate the sessions.

Previous studies have measured the role of extrinsic rewards (money), while this study will measure both the role of intrinsic (satisfaction with the task itself) **and** extrinsic rewards. Results of the study are not yet available as the project is continuing.

Mark Tapia

VIVA, PHASE-I

An Objective Evaluation

In the October 1979 *COMPUTERNEWS,* UTCS announced the experimental production version of VIVA to our user community. We reported that system performance was being continually upgraded while users became proficient with features and techniques. Nevertheless, an experiment of this caliber requires objective assessment so as to improve and fine-tune the entire system and its features for the user population.

For Phase-I, such a formal evaluation was carried out so that the students and their professors could voice suggestions/reactions systematically and quantitatively, identifying both strong and weak VIVA features.

The evaluation was conducted through two processes:

- a system evaluation questionnaire
- structured formal interviews

The questionnaire was administered to VIVA users (the students) and formal interviews were conducted with the user's instructor and teaching assistant.

The Questionnaire

The questionnaire was composed of 10 sections. Each section dealt with a specific aspect of VIVA, e.g., the physical environment, the terminal, the interactive dialogue, UTCS support, the diskettes etc. Most responses were recorded along a scale of 1-5 where 1 was Very Unsatisfactory and 5 was Very Satisfactory. Some responses required the user to make an estimate of quantitative values (i.e., number of hours/week spent on VIVA, proportion of listings printed etc.). A third category, asked the user to give brief, written replies. The questionnaire ended with a section for essay-type comments.

All users were urged to participate in the survey. Sixty-two users (approx. 70% of the students who finished the school term) returned completed questionnaires.

The responses were coded, using SPSS for statistical analysis.

The Interviews

The instructor and one teaching assistant for the CSC 149 (the majority of experimental users in Phase-1) participated in a structured interview. This consisted of 10 questions corresponding to the 10 sections of the questionnaire. Replies were initially noted in point form and subsequently submitted for final wording approval by the in-

continued...

VIVA, PHASE-I continued

terviewees.

The Results

The most positive feature of VIVA was identified as the human(e) working (programming) environment. The interaction of such factors as one-user-one machine, small and quiet room, comfortable workstations, booking system, lack of queueing, and the resulting friendly co-operation among users, established VIVA as a greatly improved man-computer interface over the card-keypunch system.

The second best feature of VIVA, according to users, was the high-speed interactive dialogue with full-screen editing capabilities. Online help and general screen layout and presentation made the dialogue easy to learn and use.

Ranking third in statistical significance among desirable features was the user-removable medium - the diskette. In comparison to cards, it was radically more convenient for storing and carrying information.

On the negative side were strictly technical features, namely implementations of hardware.

The strongest complaint concerned read-and-write speeds of the diskette drive. This had a prolonging effect on the process of *logon* and *logoff,* unacceptable to the users.

Communication speed between VIVA and the IBM 3033 was also reported as significantly unsatisfactory. The turnaround time between submitting a job and browsing the listing bordered on an unacceptable 5 minutes for the longer jobs.

A third complaint was about the poor performance of the printer assigned to the test-cluster. This was due to an interaction between the reliability, speed and quality of output from the particular device used and the communication speed with the host.

In the final analysis, when users were asked if they would use VIVA again, despite initial *bugs* and reported shortcomings, they responded 97% YES.

After an allocation of accounts for the test population selected for the second term (January-April '80), a small number of positions was re-issued to first-term users. The competition among the latter was so high that a lottery was held to short-list the *lucky winners!* Furthermore, VIVA advisors who were employed for the second term were selected among volunteers from the same test population.

Conclusions

The concept of VIVA is based on a single-user, multi-function integrated workstation. The responses obtained via this evaluation clearly indicate that computer users appreciate the flexibility, autonomy and user-friendly interaction with a computer which is achievable through VIVA.

The survey further indicates that once the main interface is radically improved, the user's standards, expectations and suggestions correspondingly develop such that he/she requires high-level performance from all components of the system.

The most beneficial outcome of the survey, incidentally, was the affirmation that end-users are the best judges/critics of the tools with which they are provided to solve their problems. As developers, we had personal and professional intimations that the dialogue and working environment offered through VIVA would gain positive acceptance and this hypothesis was confirmed. This indisputably supports our design criteria and identifies our constraints.

The survey responses have thus justified allocation of resources for addressing the problems of diskette I/O and communications speeds. The predicted levels of improvement in speed for the next phase are approximately up by a factor of x8 for the diskette and x4 for the communications

continued...

VIVA, PHASE-I continued

link.

Accordingly, we shall continue to monitor VIVA's usage (i.e., jobs run, lines printed etc.) and to periodically conduct survey-type evaluations with the user population, quantifying their specific reactions to the changes we implement. We shall also continue using the results of such surveys to derive specifications for future phases of VIVA.

Thanos

TORONTO DECUS REPORT

The 13th annual Canadian DECUS Symposium was held at Toronto's Harbour Castle Hilton Hotel on February 26-29. Each year members of the Digital Equipment Corporation User's Society of Canada meet to discuss common interests and listen to DEC representatives describing their future plans.

Approximately 500 people attended a total of over 90 sessions, making it the largest DECUS Canada symposium ever held. The sessions covered a broad range of topics such as networks, communications, Pascal and other languages, VAX/VMS, RSTS and RT-11 as well as Large Computer Group (LCG) issues.

Users with a particular interest in DEC-10 and DEC-20 systems were treated to a full slate of stimulating sessions. Many of the topics, of course, were natural follow-ups to the San Diego DECUS meeting held in December. The Jan/Feb issue of *COMPUTERNEWS* contains a report of that meeting. This article will deal primarily with the new information discussed in Toronto.

DEC-10/20 Product Overview

The session titled LCG Product Line Overview was given by Per Hjerppe, Product Manager for DEC's Large Systems Group. He summarized Digital's software development projects which are described in more detail below. Concerning hardware he stated that DEC is in the process of consolidating their future plans around the model B version of the KL-10 processor (such as the 1090 system owned by UTCS). He reiterated that the 6.03A monitor is the last one that will support the old KA-10 processor and that languages will still be supported for the KI-10 processor, only until 1981.

Hjerppe described Digital's continued development focus as including a committment to two operating systems which run on the same hardware (i.e., TOPS-10 and TOPS-20 running on KL-10 processors) as well as improved reliability through projects such as RAMP, (Reliability, Accessibility, Maintainability and Performance) planned growth through the introduction of new but compatible hardware and the protection of their customer's software investment. Digital is also committed to providing a follow-on system for their DEC-10/20 customers.

For the future Hjerppe sees a trend toward customers wanting more production utilities. Hjerppe stated that DEC is working to provide these products in the form of an improved GALAXY batch system and file archiving facilities. He also mentioned that enhanced network capability is just around the corner as the previously announced DECnet Phase III product is implemented over much of DEC's product line during the next 18 to 24 months.

In the area of peripheral equipment Hjerppe discussed the impact of the new disk technologies. At the moment the price of a fixed media device is about half that of a comparable removable pack drive and its capacities are much higher. Moreover, he expects the price difference to widen in the future as today's 600 MByte drives give

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TORONTO DECUS REPORT continued

way to the 1200 MByte devices (about the equivalent of six RP06s) he foresees. Digital plans to offer these high capacity drives, but Hjerppe warned that fixed media devices of this type pose major questions in the area of security and file backup.

Operating System

The TOPS-10 Details session was particularly applicable to UTCS and the users of its DECsystem-1090. Jim Fleming, a veteran of the TOPS-10 operating system development group, made an interesting presentation describing the motivation for and the problems encountered during the design and implementation of DEC's new Symmetic Multi-Processing (SMP) monitor, known as 7.00.

The 7.00 monitor has finished its field test cycle and is now being made available to all KL-10 based dual processor systems. 7.01, the version of that operating system intended for single processor installations such as the UTCS 1090 system, is now being field tested and early reports about it have been very favourable. UTCS will probably convert to 7.01 shortly after it becomes generally available in late summer or early fall.

Most of the new features to be included in the 7.01 release were described at San Diego and reported in the article referred to above. A few of its features not previously discussed are the following:

1. The DN87 (PDP-11 based communications front end) will have improved modem control, including an automatic disconnect for users who tie up a line without logging in. There will also be an improved set of messages to the user describing various possible system malfunctions.
2. Pseudo-Teletypes (PTYs) will be functionally equivalent to normal terminals (TTYs). For example, XON and XOFF will work exactly as they do for a conventional TTY. It also permits some new functionality to be implemented such as terminal logging and network virtual terminals (in which a terminal connected to a TOPS-10 host can communicate with a TOPS-20 system on the same network).
3. The RUN and GET commands will require less elapsed time and much less CPU time to create a core image. This has been achieved by reducing the number of swaps which result from a series of page creates.
4. A new DISK. UUO function will return the length of a file.
5. A new FILOP. function will rewrite a file's Retrieval Information Block (RIB) if - and only if - it has changed. This can be used to protect sensitive files from losing data in the event of a system crash.

In addition, there are a number of enhancements which are included for the benefit of operations, systems programming and field service personnel. These effect an overall result of making the system more reliable and therefore increasing its availability to users.

The 7.01 release will also include an Unsupported Tools Distribution Tape in which several performance and analysis programs, used in-house by DEC, will be distributed to the field. It is thought that customers will also find these programs useful even though DEC will offer no official support for them. Among the many things this package will contain is the PATH program. The availability of this utility will make it convenient for users to take advantage of the feature in 7.01 which permits users to define new logical names as arbitrary strings of files structures, UFDs and SFDs.

The 7.02 Monitor

One of the most interesting aspects of the Toronto LCG sessions was Fleming's discussion of some of the developments which will appear in the 7.02 monitor. In Fleming's words, "Now that 7.01 is in field

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TORONTO DECUS REPORT continued

test, we have to do something to keep the programmers from getting bored." This work began only recently, but already significant enhancements have been made.

The main emphasis in 7.02 will be on the improvement of TOPS-10 performance. Much of this work is being done in response to long standing menu items, such as increased throughput for buffered mode I/O and improved swapper performance.

One technique used for improving buffered I/O is to make use of big buffers. At present all disk I/O uses buffers which are exactly the size of a single disk block, i.e., 128 words. In 7.02 users will be able to perform I/O using buffers which are an integral number of blocks, from 1 to 31. Early benchmarks show that CPU and elapsed times can be reduced by factors of up to five (depending on the program) at a cost of only the extra memory required by the buffers themselves.

Another 7.02 performance enhancement ensures that if a directory is more than one block long, the monitor will read up to four blocks at a time. This substantially decreases the time required to do a series of file lookups. This will mainly help users with many files.

The swapper algorithms have been substantially reworked and results of early benchmarks have been dramatic. In particular lost time (the time the monitor spends waiting for a runnable job to swap in while none of the jobs in main memory are able to run) has been markedly reduced. This will be particularly important at sites like UTCS where memory is in short supply.

Also in response to the menu is the inclusion in 7.02 of the alternate context feature. This allows a user to first use a PUSH and then a POP command to save the state of the job, to perform some completely unrelated task and then to continue the original process as if it had never been interrupted. This procedure can be nested as deeply as the user's virtual core limit permits. Also being implemented as part of this project is a feature to ensure that certain commands such as HELP and SYSTAT will cause an automatic PUSH/POP. Thus, system information becomes available without wiping out the user's core image in the process.

Many users were happy to hear that DECnet network capability for TOPS-10 was also in the process of implementation. This is part of the recent DEC announcment concerning DECnet phase III and will include a file transfer capability.

Obviously, with 7.01 not yet in the field, DEC was in no position to even hint at a date for 7.02. However, a rough rule of thumb says that the development cycle of a major monitor release requires about 18 months. If this holds true, we can look for 7.02 sometime near the beginning of 1982.

Other Sessions

DECSYSTEM-20 users were happy to hear that the distribution process for release 4 of TOPS-20 had already begun. After a long wait it is expected to reach the field in April. The main features supported by this release are summarized here:

1. RAMP project (system software and field service enhancements to improve the reliability and availability of the system)
2. DN200 Remote Job Entry station
3. HASP multileaving for IBM RJE emulation
4. the new video editor known as TV
5. DECnet with file transfer
6. execute only programs
7. mount command interface to GALAXY
8. accounting enhancements (entries for mounts, shift changes)
9. file archiving and migration
10. system resource access control (assigning terminals, login control)
11. labeled tapes with Automatic Volume Recognition
12. performance enhancments (class scheduler, directory cache, parameters

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TORONTO DECUS REPORT continued

to assist in system tuning, etc.)

There was very little new information presented in the session on Utilities and Languages. However, it now seems certain that BLISS-36, which has been used within DEC for the past two years, will shortly be announced as an official product. In addition to becoming an officially supported language it will then gradually replace the much older BLISS-10 as the high level implementation language used by DEC for a number of their other products.

Version 6 of FORTRAN-10 will be going into field test in March, 1980. It includes a major rewrite of FOROTS in order to provide the groundwork for the later implementation of the new 1977 FORTRAN standard. (It is intended that version 7 will fully implement the '77 standard and be validated in the spring of 1981.) The FORTRAN library will include a set of rewritten, mathemetics subroutines with much improved accuracy. The compiler itself will have several minor enhancements such as implementing the FORTRAN-77 FORMAT descriptors and OPEN arguments. Other improvements include more user control over error processing, faster random I/O, support for industry compatible unlabeled tapes (one character/frame) and the availability of 99 units (not channels). There will also be new documentation.

Summary

In addition to the formal presentations made by Digital there were several interesting contributed papers, panel discussions and workshops as well as innumerable hallway discussions. These were all interesting and contributed much to the success of the Toronto DECUS conference.

One promising consequence of the symposium was a meeting of representatives from about 20 southern Ontario DEC-10 and DEC-20 sites at which the possible formation of a Local User Group (LUG) was discussed. The response was favourable and an organizational meeting has been scheduled. The advantages of such an organization include the discussing of common problems on a regular basis and having a more united approach in dealings with Digital. It is likely that UTCS will be an active participant in such a LUG.

The next DECUS meeting will be in Chicago at the Hyatt Regency O'Hare hotel on April 22-25, 1980. Next year's DECUS Canada Symposium is scheduled for February 16-19, 1981, at Montreal's Queen Elizabeth Hotel. See you there.

Edmund West

DEC USER FORUM

DEC-1090 users are invited to a DEC **User Forum** on Thursday, May 1, 1980, 2P.M. to 4 P.M. in room 304 of the Galbraith Building. The forum is to inform DEC users of changes occurring in the next few months and it will give them the opportunity to voice comments.

The forum agenda is:

- future plans for TOPS-10
  Operating system/Languages/Utilities
- response time, memory limitations and possible core usage restrictions
- courses for DEC-10 users
- enhancements for online accounting
- plans for IBMLST replacement
- open discussion

The success of the forum will depend on your participation. Please plan to attend. Coffee and donuts will be served.

Ralph Lombardi

RT-11 LOCAL USER GROUP

RT-11 is the single-user operating system for the PDP-11 series of computer systems. Many people on campus have small RT-11 based systems in their offices or laboratories. A number of users of RT-11 systems in Toronto and vicinity met for the first time at the Digital Equipment Corporation Users' Society (DECUS) symposium in Toronto and have since formed a Local User Group (LUG) under the auspices of DECUS Canada. A LUG can serve as a contact point for new users or a software exchange for experienced users. It can be useful in spotlighting problems in new software and in emphasizing the importance of these problems to software support people. The newly-formed LUG will be meeting periodically in the Toronto area to discuss these and other aspects of RT-11.

Anyone who wants to participate in the RT-11 Local User Group, or who wants to know what other users in the area are doing with RT-11, should contact the RT-11 LUG coordinator, Ian Darwin, at 978-4597. The next meeting will be held April 23 - call for time and place. RT-11 users, bring your problems and solutions!

Ian Darwin

NEW IMSL EDITION 7

The latest edition of the International Mathematical and Statistical Library (IMSL), Edition 7, should now be available for general use. This is a major upgrade from Edition 6 and involves many additions, a few deletions, and some minor (and possibly irritating) changes in routine names and argument lists. All IMSL routines from Edition 7 will be installed, not just those requested, as was the policy with Edition 6 and previous editions.

The current plan is to run both editions until September, when Edition 6 will be removed from the system. Around 1 July, Edition 7 will become the default edition. All UTCS Computing Services Representatives should now have copies of the new *Edition 7 IMSL Manual* and a handout to help users convert their programs to Edition 7 and use the IMSL routines in new programs.

John Roth

SAS USERS GROUP INTERNATIONAL 80

San Antonio, Texas was the site of the 5th annual Statistical Analysis System Users Group International (SUGI) conference. From February 18 to 20 SAS users and SAS Institute met to discuss up-coming features and to share ideas on the effective use of SAS.

First, the results of the annual SASware ballot were announced. (All SAS users on the mailing list suggest and vote on items to be considered by the SAS Institute.) Although priorities of users and SAS Insti-

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SAS USERS GROUP continued

tute are not always in accord, users **are** listened to.

The big news was **graphics**. SAS has developed an interactive graphics package available to users for a reasonable $750 the first year and $300 a year thereafter. It has full colour support where applicable and downloads hardware functions to intelligent terminals for increased plotting speeds. The main features are PROCs GCHART, GPLOT and G3D, the first two being compatible with current PROCs CHART and PLOT. SAS/GRAPH is expected to be available in April 1980, with support for Tektronix 4662 and 4663 pen plotters and 4010, 4025 and 4027 scopes, plus HP 7221 pen plotters and 2647 and 2648 scopes (monochrome).

Hardware is even available. SAS is offering graphics terminals at slightly reduced prices through a deal with the manufacturers.

Batch graphics will not be available for about a year.

New features of SAS 79.3 were also discussed. UTCS will go directly to 79.4 sometime this spring. New features include DO WHILE and DO UNTIL; some bit testing functions; VSAM and ISAM support; some new character manipulation and date-time functions.

Additional new statistical procedures and enhancements from SAS Institute, though not for 79.4, include a replacement for PROC FREQ, survival analysis, ridge regression and recent discriminant and cluster procedures.

SAS Institute continues to work on an econometrics and time series package (SAS/ETS) which becomes another option. It includes forecasting, modelling and simulation (linear and non-linear). The current PROCs AUTOREG, SYSREG and SPECTRA will become part of this optional package when it is ready.

Several sessions took place on topics like computer performance, SAS training/consulting and statistical procedures, as well as impromptu discussions, or Poster Sessions. Of particular interest were a PROC RECODE (to duplicate the SPSS RECODE feature); the use of SAS for survival analysis and repeated measures analysis of variance; and the linking of SAS to SPEAKEZ.

A copy of the proceedings will eventually be available for reference at the Information Office, Engineering Annex, Room 206. Anyone with questions, or an interest in being on the SAS mailing list, can contact John Roth at 978-6878.

John Roth

DECUS CANADA SYMPOSIUM

As announced previously in *COMPUTERNEWS*, the XIII annual Digital Equipment Corporation Users' Society (DECUS) Canada Symposium was held in February in Toronto. Several sessions were of interest to the UTCS staff members who attended. Some of these are described below. Subsequent to the conference, several attendees are now forming a Local User Group (LUG) for users of the RT-11 operating system in Toronto and surrounding areas. See the separate article *RT-11 LOCAL USER GROUP* elsewhere in this issue of *COMPUTERNEWS*.

Terry Wood, UTCS Communications and Small Systems, gave a presentation on "VIVA - An Intelligent Workstation" dealing with the history and future of the VIVA project at UTCS.

Anton Chernoff, from Digital Equipment Corporation in Maynard, gave presentations on themes relating to the RT-11 system, including Version 4 of RT-11. Version 4 is

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DECUS CANADA SYMPOSIUM continued

scheduled for release in April and includes a number of features for users and for RT-11 maintenance. The user enhancements include extended keyboard commands and an excellent full-screen Keyboard Editor (KED) currently in use in the VIVA project. Some of the features for RT-11 maintenance include the separation of the system driver from the monitor (i.e., one monitor can be booted from several different devices without re-generating that monitor), a new error logging facility, the ability to run up to 7 system jobs such as spoolers, queuers, monitors or other tasks, better patching facilities, etc.

Chernoff also took part in a panel on "RT-11 Emulation for Program Development" which focused on the use of larger PDP-11 operating systems to develop and/or run RT-11 programs. He discussed emulators for RSX and RSTS, while Mike Tilson of Human Computing Resources, Toronto discussed the use of UNIX with an emulator that they provide.

Bob Nusbaum from Digital gave several presentations on the FMS-11 package which provides a high-level dialogue interface between a program and a video terminal. FMS-11 is used in the VIVA project at UTCS and was recently announced on the RSX operating system.

In addition, several specialized sessions were offered. Hardware fans attended a presentation on writing one's own diagnostics for use with the DEC/X diagnostic package. A presentation on DECNET was given by Mike Weinstein from Digital. Two panels were offered, one on Comparison of Operating Systems for the PDP-11 and one comparing Text Processing Systems which run on Digital Equipment hardware, the latter chaired by Bernie Ogino of UTCS. Moreover, two interesting presentations were given on the same topic: "A Talking Computer" and "Another Talking Computer" described recent developments in adding speech facilities to computers.

More information on the Canadian DECUS Symposium can be found in the article *TORONTO DECUS REPORT* elsewhere in this edition of *COMPUTERNEWS*.

Ian Darwin

PERSONNEL CHANGES

As of April 1, three promotions take effect in Services Support. Continuing within the group are Agatha Stevens and Michelle Mule. Merton Hunt's new position as programmer is a transfer to Academic Services.

Kathlyn DeGuire, from the Administrative Office, is also transferring to the Faculty of Medicine. Larry VanPelt is taking up employment off-campus, after more than a year at UTCS.

Welcome to Pat Smith, the new Assistant Editor as of March 17. She worked as a technical writer at the Faculty of Library Science.

Theresa Veira

UTCS SYSTEMS

3033 PROCESSOR

- located in Mclennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR
- 6 megabytes of memory
- MVS with JES2

SYSTEM/370 MODEL 165-II

- located in McLennan Physical Laboratories
- provides APL and ATS services
- 4 megabytes of memory
- OS/MVT with APL and ATS

3031 PROCESSOR

- located in McLennan Physical Laboratories
- provides administrative IMS/VS DB/DC Batch and TSO services
- 6 megabytes of memory
- MVS with JES2

DECSYSTEM-10 Model 1090

- located in Sandford Fleming
- provides General Purpose Time-Sharing
- 256 K - 36 bit words of memory
- TOPS-10 operating system

COMMUNICATIONS & SMALL SYSTEMS (CSS)

- located in SF106
- DEC GT44 System with PDP-11/40 CPU
- 2 Z80 based microcomputers
- DEC GT40 System with PDP-11/05 CPU
- provides specialized graphics and inter- active graphics
- provides on-line and real-time computing services, data acquisition and minicomputer services

UTCS DIRECTORY

POSITION	ROOM	CENTREX PHONE NUMBER
Director		
Dr. Doron Cohen	MP350	8948
Associate Directors		
Rein Mikkor	MP350	5058
Al Heyworth	MP350	4936
Faculty Liaison Officer		
Dr. Frank Spitzer	MP350	4619
Manager, Communications & Small Systems		
Eugene Siciunas	MP350	4967
Manager, Operations		
Derry Cox	MP350	7092
Manager, Systems		
Ward Beattie	MP350	3579
Manager, Academic Computing Services		
Ralph Lombardi	MP350	7130
Manager, Administrative Computing Services		
Walter Berndl	MP350	7331
Manager, Services Support		
Don Gibson	MP350	5568
Administrative Officer		
Suzan Fawcett	MP350	4428
Information & Accounting Office		
General Inquiries	EA206	4990
Accounts		
Merton Hunte (U of T)	EA206	8702
Sylvia May (External)	EA206	7148
Supervisor, Accounting & Information Services		
Marg Doherty	EA209	3960
Access Codes		
Agatha Stevens	EA206	8703
Supervisor, Communication Systems		
Walter Rosocha	SF105	7087
Programming Services		
Bill Lauriston	SG201	6877

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UTCS DIRECTORY continued

Entry Services

Supervisor		
Vera Cabanus	MP368	5040
Text Entry		
Dale Wright	MP368	4565
Data Entry		
Zelda Anderson	HU405	5273
Keypunching		
Dale Wright	MP368	4565

Supervisor, Applications

Herb Kugel	SG304	7286

Computing Services Representatives

Engineering Annex Terminal		
Sue Chong	EA201	4357
Program Advisors	EA103	
Time-Sharing Support		
TS Advisors	SG204	6465
Mark Tapia	SG204	7109
Erindale		
Paul Shindman		828-5311
Scarborough		
Bob Blackburn		284-3173
Arts and Science		
	SS2133	6509
New Physics		
Bob Chambers	MP1202	8823
External		
Ihor Prociuk	SG205	6875,6885

Supervisors, Operations

Paul Scarborough (IBM 3033-IBM 165)	MP335	6220
Krishna Patnaik (DEC-1090 & CSS)	SF106	4086
Dave Wong (IBM 3031)	MP335	6864

Key:

EA = Engineering Annex
SG = 49 St. George
HU = 215 Huron St.
MP = McLennan Physical Laboratories (New Physics)
SF = Sandford Fleming
SS = Sidney Smith

Job and System Status Queries

SYSTEM/3033,TSO	7373
ATS/APL	6234
2741 TERMINAL MALFUNCTIONS	7107

Time-Sharing Services	Dial-Up
APL,ATS	7200 Centrex 7201 Non Centrex
TSO,WYLBUR	6200 Centrex 6201 Non Centrex
DEC-10 Services	4224 Centrex 4244 Non Centrex
PHONE-IN ADVISING	6465

UNIVERSITY OF TORONTO
COMPUTING SERVICES
TORONTO, CANADA

CAMPUS [illegible]

MR. R.D. TAYLOR-VAISEY
UNIVERSITY OF TORONTO ARCHIVES
120 ST GEORGE STREET
UNIVERSITY OF TORONTO